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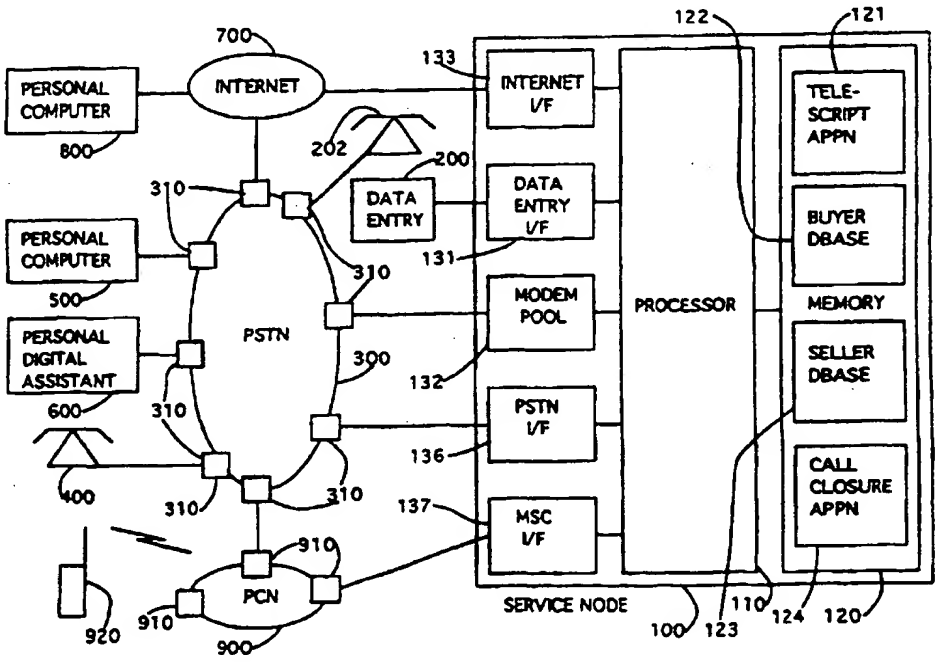

(57) Abstract

In methods and apparatus for contact closure, a predefined call closure stimulus event is detected and, in response to such detection, a call is placed to a first predefined network. When the call is answered at the first network address, the call closure stimulus event is announced, and a connection to a second predefined network address is offered. In response to acceptance of the offer, the first network address is connected to the second network address.

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METHODS AND APPARATUS FOR AUTOMATING CONTACT CLOSURE

Field of Invention

This invention relates to methods and apparatus for automating closure of contacts between parties having a shared interest in communicating with one another.

Background of Invention

Classified advertisements are one means for bringing together people having a shared interest in communicating with one another. Advertisers with goods or services to sell have an interest in communicating with those interested in buying those goods or services. Those interested in buying goods or services read the classified ads to determine who may have the goods or services they want, and use telephone numbers or other information printed in the ads to contact sellers.

Traditionally, classified ads are placed in printed publications like newspapers, magazines or journals. Potential buyers must search through many ads to find those that are of potential interest. This time-consuming process must be repeated for each new edition of the printed publication which, in the case of newspapers, can be daily. Ads which are repeated in sequential editions of the publication must be rescanned in each successive edition of the publication, even though the potential buyer has already determined that these ads are not of interest. If the buyer fails to scan some editions of the publication, he may miss ads of potential interest. If the buyer delays in scanning some editions of the publication, the opportunity to buy may have passed before he responds. Ads purchased for an extended run may continue to appear in printed publications long after the required item or service has been bought or sold. Responses to obsolete ads waste the time of both buyers and

sellers. Moreover, the seller cannot control the timing of calls in response to the ad.

On-line classified ads offer some advantages over classified ads in printed publications. The potential buyer can use automated search techniques to find ads of potential interest. Although repeated searching of the same ads is still necessary, automated searching makes this a less tedious task. Moreover, obsolete classified ads can be deleted more quickly, so that less time is wasted on responses to lost opportunities. The use of electronic mail for responding to on-line ads lessens the inconvenience of responses at odd hours of the day. Nevertheless, the potential buyer must still be vigilant to ensure that opportunities to buy are not missed due to delay.

Summary of Invention

An object of this invention is to reduce or avoid some or all of the disadvantages of the known classified ads as outlined above by providing improved methods and apparatus for automating contact closure between parties having a shared interest in communicating with one another.

The invention has a wide range of applications beyond classified advertising, and examples of these applications are described below.

One aspect of this invention provides a method for automation of contact closure. The method comprises the steps of:

1. automatically detecting a predefined call closure stimulus event;
2. in response to detection of the predefined call closure stimulus event, placing a call to a first predefined network address;

3. in response to answering of the placed call, automatically announcing the predefined call closure stimulus event and offering the first predefined network address a connection to a second predefined network address; and

4. in response to acceptance of the offer, connecting the first predefined network address to the second predefined network address.

In the above method, one or both of the predefined network addresses can be selected from a respective list according to a current time, defined in terms of time of day and day of week. This enables users to arrange for calls to be directed according to their usual daily movements to increase the probability of successful contact closure.

If no network address is listed for certain times (e.g. the middle of the night), call placement can be deferred to a time for which network addresses are listed. This enables users to control the times at which they are called.

Further method steps can be defined to facilitate contact closure when automated calls cannot be completed when first attempted.

Another aspect of the invention provides a system for automating contact closure. The system comprises a detector for automatically detecting a predefined call closure stimulus event, and call closure means. The call closure means is operable to place a call to a first predefined network address in response to detection of a predefined call closure stimulation event, to announce the predefined call closure stimulus event and offer a connection to a second predefined network address in response to answering of the placed call, and to connect

the first predefined network address to the second predefined network address in response to acceptance of the offer.

The call closure means may comprise a processor and a memory storing instructions for execution by the processor, the instructions comprising a call closure application.

The call closure means may comprise at least one telecommunications network interface for connecting the processor to a telecommunications network. The telecommunications network interface is operable to control at least one telecommunications switch of the telecommunications network to establish connections between predefined network addresses.

The contact closure stimulus event could be the matching of criteria in a first record with criteria in a second record. For example, the first record could define the goods or services sought by a buyer, and the second record could define the goods or services offered by a seller. In this case, the automated method would bring the buyer into contact with the seller so that they could try to arrive at mutually agreeable terms for a transaction.

Such an automated method, as applied to classified advertising, offers many advantages over existing classified advertising practices. In particular, the method automatically searches for matches between buyers' search criteria and sellers' classified ads as soon as new ads are placed or new search criteria are defined. This searching requires no effort on the part of the buyers or sellers. Both the buyers and the sellers are notified of matches between search criteria and ads as soon as the buyers and sellers are available to be notified.

The ads can be deleted in real time to avoid time wasted by both buyers and sellers on obsolete ads. The ads can be also added in real time and will get immediate screening by potential buyers.

Because the sellers do not need to list their directory numbers in the ads to enable potential buyers to contact them, the sellers have greater privacy. In particular, the sellers need not reveal their location or identity until the negotiation is complete.

Moreover, the utility of the automated method is not limited to buying and selling. The same advantages pertain to use of the system for employment ads, personals, and other types of classified ads.

Indeed, as will be described below, the automated method and system has applications that go beyond classified advertising.

Brief Description of Drawings

Embodiments of the invention are described below by way of example only. Reference is made to accompanying drawings in which:

Figure 1 is a block schematic diagram of interconnected telecommunications networks used to provide an improved classified advertising service; and

Figures 2A, 2B and 2C define a flow chart showing steps performed by a service node of the interconnected networks of Figure 1 to provide the improved classified advertising service.

Detailed Description

Figure 1 is a block schematic diagram of interconnected telecommunications networks used to provide an improved automated classified advertising service.

A service node 100 of the interconnected networks, comprises a processor 110, and a memory 120 for storing instructions for execution by the processor 110 and data used in execution of those instructions. The memory 120 stores a commercially available Telescript™ software application 121, a buyer database 122 storing search criteria and buyer contact profiles for each of a plurality of registered buyers, a seller database 123 storing classified ads and seller contact profiles for each of a plurality of registered sellers, and a call closure software application 124. The Telescript™ software application 121 searches the classified ads stored in the seller database 123 according to the search criteria defined in the buyer database 122, detects matches between classified ads and search criteria, and informs the call closure software application 124 of any such matches.

The service node 100 further comprises a data entry interface 131 for connecting the processor 110 to a data entry terminal 200. The data entry terminal 200 may be used by an operator to make changes to the buyer database 122 and to the seller database 123. The operator is also provided with a telephone 202 which is connected to a telecommunications switch 310 of the Public Switched Telephone Network (PSTN) 300. Consequently, a seller can place a voice call to the operator on any telephone 400 connected to the PSTN 300 to place, modify or cancel an ad, or to modify a seller contact profile, the operator implementing the seller's instructions using the data entry terminal 200. Similarly, a buyer can place a voice call from the telephone 400 to define, modify or cancel search criteria, or to modify a buyer contact profile.

The service node 100 further comprises a modem pool 132 for providing a data connection between the processor 110 and the PSTN 300. Consequently, a seller

having a commercially available Magic Cap™ software application running on a modem-equipped Personal Computer (PC) 500 can access the service node 100 via circuit switched data services provided by the PSTN 300 to place, modify or cancel an ad, or to modify a seller contact profile. Similarly, a buyer can place a circuit switched data call from the PC 500 to define, modify or cancel search criteria, or to modify a buyer contact profile. The Telescript™ software application 121 is equipped with conventional security features which ensure that the operator of the PC 500 can only make authorized changes to the buyer database 122 and the seller database 123.

Buyers and sellers can likewise access the service node 100 from a Personal Digital Assistant (PDA) 600 running Magic Cap™ application software to place, modify or cancel an ad, to modify a seller contact profile, to define, modify or cancel search criteria, or to modify a buyer contact profile.

The service node 100 further comprises an Internet interface 133 for providing a data connection between the processor 110 and the Internet 700. Consequently, an operator of a PC 800 which is connected to the Internet 700 and running a Magic Cap™ software application can access the service node 100 to place, modify or cancel an ad, to modify a seller contact profile, to define, modify or cancel search criteria, or to modify a buyer contact profile. Note that the PC 500 can also access the service node 100 via the Internet 700, by using circuit switched data services of the PSTN 300 to connect to the Internet 700.

The service node 100 further comprises a PSTN interface 136 which is connected to a telecommunications switch 310 of the PSTN 300. The PSTN interface 136 provides Integrated Services Digital Network (ISDN),

Advanced Intelligent Network (AIN), or Signalling System 7 (SS7) signalling between the service node 100 and the telecommunications switch 310 enabling the service node 100 to set up calls on the PSTN 300 and to monitor the progress of those calls.

Similarly, the service node 100 also comprises a Mobile Switching Center (MSC) interface 137 which is connected to MSC 910 of a Personal Communications Network (PCN) 900, the MSC interface 137 providing signalling in the protocol used by the PCN 900 to enable the service node 100 to set up calls on the PCN 900 to a mobile terminal 920.

The PCN 900 is connected to the PSTN 300, so that the mobile terminal 920 can also be used to place a voice call to the telephone 202 to request that the operator place, modify or cancel an ad, modify a seller contact profile, define, modify or cancel search criteria, or modify a buyer contact profile. If the mobile terminal 920 is a data terminal running a Magic Cap™ software application, it can also access the service node 100 via the PSTN 300 and the modem pool 132, or via the PSTN 300, the Internet 700 and the Internet interface 133.

Figures 2A, 2B and 2C comprise a high level flow chart showing steps performed by the call closure software application 124 when the Telescript™ software application 121 detects a match between a buyer's search criteria and a seller's classified ad.

The call closure software application 124 receives a report of the match from the Telescript™ software application 121, the report including a buyer identifier and a seller identifier. The call closure software application 124 retrieves the buyer contact profile corresponding to the buyer identifier from the

buyer database 122. The buyer contact profile may read as follows, for example:

Buyer 14175:

0000-0759	(214) 444-2753
0800-1159	(214) 444-7058
1200-1259	(214) 444-8159
1300-1659	(214) 444-7058
1700-2159	(214) 225-3448
2200-2359	(214) 444-2753

This contact profile indicates that the buyer wants to be contacted at his office telephone (214) 444-7058 during office hours, his mobile telephone (214) 444-8159 during his lunch break, his home telephone (214) 225-3448 after work until 10:00 PM, and his office voice mail (214) 444-2753 at all other hours.

The call closure software application 124 retrieves the buyer directory number for the current time from the buyer contact profile. If there is no directory number for the current time in the buyer contact profile, the buyer does not want to be disturbed at this time, so the call closure software application 124 sets a flag and waits until the next time for which the buyer contact profile lists a directory number.

Otherwise, the call closure software application 124 retrieves the seller contact profile corresponding to the seller identifier from the seller database 123, the seller contact profile being analogous to the buyer contact profile described in detail above. The call closure software application 124 retrieves the seller directory number for the current time from the seller contact profile. If there is no directory number for the current time in the seller contact profile, the seller does not want to be disturbed at this time, so the call closure software application 124 sets a flag and waits until the

next time for which the seller contact profile lists a directory number.

When the call closure software application 124 has retrieved both buyer and seller directory numbers for the current time, it originates a call to the buyer's directory number using appropriate signalling over the PSTN interface 136 or the MSC interface 137. If the call is answered at the buyer's directory number, the call closure software application 124 retrieves the content of the seller's ad from the seller database 123, converts it from text to speech using a commercially available text-to-speech converter, and announces the ad content to the buyer. The call closure software application 124 then offers to connect the buyer to the seller, providing an Interactive Voice Response (IVR) menu of keystrokes to the buyer.

If the buyer accepts the offer of a connection with a specified keystroke, the call closure software application 124 originates a call to the seller's directory number using appropriate signalling over the PSTN interface 136 or the MSC interface 137. If the call is answered at the seller's directory number, the call closure software application 124 bridges the calls to provide a direct voice connection between the buyer and the seller. The buyer and seller can then attempt to negotiate a sale.

If the call is not answered at the seller's directory number, the call closure software application 124 drops the call to the seller's directory number, announces the failure to complete the connection to the buyer, and offers the buyer an IVR menu of "try again options", for example:

1. Try again in one hour,
2. Try again in two hours,

3. Try again tomorrow at this time,

4. Provide directory number to enable me to complete call later; or

5. Don't try again.

If the buyer selects any of options 1-3, the call closure software application 124 waits the specified time and then begins again the process of attempting to connect the buyer with the seller.

If the buyer selects option 4, the service node 100 announces a directory number and an access code to the buyer and stores the buyer's and seller's directory numbers at a location identified with the announced directory number and access code. The buyer may dial the directory number and, in response to a prompt, dial the access code at a later convenient time to reactivate the call closure offer.

If the buyer selects option 5, the call closure software application 124 abandons the attempt to connect the buyer with the seller.

If the buyer does not accept the offer to complete a call to the seller, the call closure software application 124 drops the call to the buyer's directory number. However, the seller may wish to know of the detected match and may wish to actively sell to the buyer. Consequently, the call closure software application 124 then originates a call to the seller's directory number using appropriate signalling over the PSTN interface 136 or the MSC interface 137. If the call is answered at the seller's directory number, the call closure software application 124 retrieves the buyer search criteria from the buyer database 122, converts the search criteria from text to speech using a commercially available text-to-speech converter and announces the buyer's search criteria to the seller. The call closure software application 124

announces that the buyer is not currently available and offers the seller an IVR menu of "try again options" as described above. If the seller elects to try again, the call closure software application 124 waits the specified time and then begins again the process of attempting to connect the buyer with the seller. Otherwise, the call closure software application 124 abandons the attempt to connect the buyer with the seller.

If the call is not answered at the seller's directory number, neither the buyer nor the seller has been contacted about the detected match. Consequently, the call closure software application 124 drops the call to the seller's directory number and waits a predetermined length of time (e.g. one hour) and then begins again the process of trying to connect the buyer to the seller.

If the call encounters voice mail at the buyer's directory number, the detected match is announced for recording on the voice mail system together with a directory number and an access code that the buyer can dial to reactivate the call closure offer. The service node 100 stores the buyer's and seller's directory numbers at a location identified with the announced directory number and access code. Similarly, if the call encounters voice mail at the seller's directory number, the detected match is announced for recording by the voice mail system together with a directory number and an access code that the seller can dial to reactivate the call closure offer.

The automated classified advertising system as described above offers many advantages over existing classified advertising practices. In particular, the system described above automatically searches for matches between buyers' search criteria and sellers' classified ads as soon as new ads are placed or new search criteria are defined. This searching requires no effort on the part of

the buyers or sellers. Both the buyers and the sellers are notified of matches between search criteria and ads as soon as the buyers and sellers are available to be notified.

The user-defined contact profiles increase the probability that buyers and sellers will be able to make prompt contact with one another while minimizing the probability of calls at inconvenient times and places. The capability of routing calls to mobile terminals, further increases the probability that buyers and sellers will be able to make prompt contact with one another.

The ads can be deleted in real time to avoid time wasted by both buyers and sellers on obsolete ads. The ads can be also added in real time and will get immediate screening by potential buyers.

The content of the ads and the search criteria of the buyers can be adjusted in real time. Such adjustments may be made by buyers and sellers in response to the number and nature of contacts closed by the system to reduce or increase the number of contacts and to eliminate unproductive contacts.

Because the sellers do not need to list their directory numbers in the ads to enable potential buyers to contact them, the sellers have greater privacy. In particular, the sellers need not reveal their location or identity until the negotiation is complete.

Because the Internet extends worldwide, the system is not limited to a limited geographical area such as the circulation region of a printed newspaper.

Moreover, the utility of the automated classified ad system is not strictly limited to buying and selling.

The same advantages pertain to use of the system for employment ads, personals, and other types of classified ads.

The embodiments described above may be modified without departing from the principles of the invention. For example, the buyer and seller contact profiles described above could be extended to list multiple directory numbers in each time interval, the directory numbers to be tried in the listed sequence until a successful connection is made. Alternatively, the multiple directory numbers in the contact profile could tried simultaneously, connections to unanswered lines being dropped when the call is answered on one line. Such contact profiles would further increase the probability that buyers and sellers will be able to make prompt contact with one another.

If a voice mail system is encountered at one directory number on a contact list of directory numbers to be tried in sequence, a range of voice mail options may be provided, including:

1. leave message on voice mail system and do not try further directory numbers on list;
2. do not leave message and try further directory numbers on list; and
3. leave message and try further directory numbers on list.

Where such options are offered, the currently selected option may be defined in the contact list.

The contact profiles could also be extended to include directory numbers of terminals other than telephones. For example, the call closure software application package 124 could be extended to format messages for pagers, data terminals, facsimile machines, and mobile terminals with short message reception

capabilities to further increase the probability that buyers and sellers will be able to make prompt contact with one another. The contact profile could include the option of always sending electronic mail announcing the match to a particular data terminal so that the buyer always has a written record of the match that can be used when making voice contact with the seller.

The contact profile could also include Internet addresses of workstations 100 equipped with software enabling them to provide voice telephony over the Internet. One such software package is available from VocalTec™ at 35 Industrial Parkway, Northvale, NJ 07647.

In cases where a short text message is sent to a mobile terminal via a short message service, the short message could include features as described in a copending application entitled Methods and Apparatus for Providing Communications to Telecommunications Terminals filed in the names of C. Bannister, P. Govindarajan, R. Edwards and B. Fink on the same date as this patent application. In particular, the short message could include numbered call closure options, for example:

1. complete offered call now;
2. do not complete offered call;
3. provide DN and access code for later completion of call.

The recipient could then send a short message comprising the number of the selected option, and the data service node 500 could provide the desired call closure activity in response to the number contained in the received short message.

In the embodiment described above, IVR technology is used to enable a called party to activate the call closure option. Alternatively, automatic speech recognition could be used or the call closure option could

be displayed as a icon on a touch sensitive screen, the called party activating the option by touching the icon.

In the embodiment described above, if the buyer refuses an offer of contact closure, a reciprocal offer is made to the seller. If this feature is objectionable to buyers it could be defeated globally. Alternatively, each buyer could be given the option of defeating such calls, option being defined in the buyer's contact profile.

In the embodiment described above, the buyer is offered several options if the seller is not available to receive the call. These or similar options could be offered to the buyer if the buyer refuses the offer of call closure - the buyer may simply be occupied when the offer is extended, and may wish to complete the call at a later time.

The data service node 100 could be linked by appropriate interfaces to multiple mobility networks using different protocols in addition to the PCN 900 illustrated in Figure 1. For example, the data service node 100 could be connected to GSM, PCS 1900, AMPS, TDMA, CDMA and CDPD networks.

Interfaces could be provided to permit potential buyers and sellers to browse the classified ads instead of, or in addition to having them searched automatically. Such interfaces could include market research capabilities to enable potential buyers and sellers to compile information on recent sales and current ads, for example:

1. high, low and average prices for sales of similar items in recent sales;
2. average time to sell similar items in recent sales;
3. number of similar items currently on sale; and

4. high, low and average prices of similar items currently on sale.

Automated auction capabilities could be provided to collect bids from potential buyers and to rank order the bids for the seller.

The Telescript™ application of the data service node 100 could be programmed to search other on-line classified ad services over the Internet 700 to identify other potential matches, reporting such matches to potential buyers.

Data terminals linked to the service node 100 could be installed in public establishments for access by the general public to place ads, to define search criteria and to browse ads.

All of these modifications enhance the utility of the automated classified ad system and are within the scope of the invention.

The embodiment described above uses Magic Cap™ software to provide a user interface. Alternative software, for example Java™, Netscape™ or other types of software could be used to provide the user interface. Similarly, while Telescript™ agent software is used in the embodiment described above, the agent applications could be implemented in Java™, SmallTalk™ or alternatives.

The contact closure system and its method of operation has applications beyond classified advertising. For example, police seeking a criminal with certain characteristics could enter a record listing those characteristics in a centralized system. Police elsewhere could enter a record listing characteristics of people in their custody. Should the system detect a match between the characteristics of a person sought and a person in

custody elsewhere, the system could automatically bring the police at different locations into contact so that appropriate action could be taken.

In another application, the system could be connected to automatic stock price monitoring systems. The system could then notify a client when certain stocks cross predefined price thresholds, offering the client an automatic connection to his or her stock broker to complete a transaction.

For each of the above applications, one or more databases must be provided to store the available and sought after characteristics, and an automatic comparison application is required to compare the stored characteristics and to trigger the call closure application when a match is found. The match of stored characteristics corresponds to a match between predefined fields of specific database records.

The contact closure stimulus event could also be the availability of certain information. For example, a doctor could order medical tests on a patient in a hospital and ask to be automatically notified when the results are available. The system could call the doctor when the lab creates a record of the results, announce the results to the doctor and offer the doctor automatic connection to relevant personnel - for example automatic connection to a lab technician so that the doctor can request clarification of the results, or automatic connection to a nurse on the patient's floor if the doctor wants to order particular treatment in view of the test results.

In this case, a database is provided to store the information, and the contact closure application is constructed so as to trigger when a record of the database is changed - in particular when the desired data is added

to the certain predefined fields of data records stored in the database.

Other applications could also be implemented using similar functionality. For example, the contact closure stimulus event could be a detected need for service. For example, a sensor on the fuel tank of a home heating system could trigger a call to the owner when the fuel supply is low and offer the owner a connection to the fuel supplier to order more fuel. Or delay of a flight by an airline could trigger calls to all passengers having tickets for that flight, announcing the delay and offering the passengers automatic connection to a ticket agent to make alternative flight arrangements if desired.

The contact closure event could be receipt of a voice mail or electronic mail message. For example, receipt of a voice mail message could trigger a call to the owner of the voice mail box at a remote location, announcement of the voice mail message to the owner and an offer of a connection to the caller. A similar service could be provided for incoming electronic mail messages using automatic text to speech conversion.

These and numerous other applications are within the scope of the invention as claimed below.

WE CLAIM:

1. A method for automation of contact closure, comprising:

automatically detecting a predefined call closure stimulus event;

in response to detection of the predefined call closure stimulus event, placing a call to a first predefined network address;

in response to answering of the placed call, automatically announcing the predefined call closure stimulus event and offering the first predefined network address a connection to a second predefined network address; and

in response to acceptance of the offer, connecting the first predefined network address to the second predefined network address.

2. A method as defined in claim 1, further comprising selecting at least one of the first and second predefined network addresses from a respective list of predefined network addresses according to a current time.

3. A method as defined in claim 2, wherein, if at least one respective list contains no network address for use at the current time, the step of selecting at least one network address is deferred for an interval of time.

4. A method as defined in claim 2, wherein the current time is defined in terms of time of day and day of week.

5. A method as defined in claim 1, further comprising, In response to failure to complete the connection to the second network address:

announcing options for later attempts to complete the connection to the second network address;

accepting selection of an announced option; and

repeating the call placement, connection offering and connection completion steps at a later time selected in accordance with the selected option.

6. A method as defined in claim 1, further comprising, in response to the offer of a connection not being accepted:

dropping the call to the first network address;

placing a call to the second network address;

in response to answering of the placed call, announcing the call closure stimulus event to the second network address;

announcing that the first network address is not currently available;

announcing options for later attempts to complete a connection to the first network address;

accepting selection of an announced option;

placing a call to the second network address at a later time selected in accordance with the selected option;

in response to answering of the placed call, automatically announcing the call closure stimulus event and offering the second network address a connection to a first network address; and

in response to acceptance of the offer, connecting second network address to the first network address.

7. A method as defined in claim 1, further comprising, in response to the call placed to the first address not being completed:

placing a call to the second network address;

in response to answering of the placed call, announcing the call closure stimulus event to the second network address;

announcing that the first network address is not currently available;

announcing options for later attempts to complete a connection to the first network address;

accepting selection of an announced option;

placing a call to the second network address at a later time selected in accordance with the selected option;

in response to answering of the placed call, automatically announcing the call closure stimulus event and offering the second network address a connection to a first network address; and

in response to acceptance of the offer, connecting second network address to the first network address.

8. A method as defined in claim 7, further comprising, in response to the call placed to the second network address not being completed, repeating the call placement to the first address followed by the event announcement step and the connection offer step at a later time.

9. A method as defined in claim 5, further comprising defeating the call placement repeating step in response to the call closure stimulus event being negated.

10. A method as defined in claim 6, further comprising defeating the step of placing a call to the second network at a later time in response to the call closure stimulus event being negated.

11. A method as defined in claim 7, further comprising defeating the step of placing a call to the second network at a later time in response to the call closure stimulus event being negated

12. A method as defined in claim 8, further comprising defeating the call placement repeating step in response to the call closure stimulus event being negated.

13. A method as defined in claim 1, further comprising, in response to failure to complete a connection to at least one of the first and second network addresses:

determining an alternative network address from a respective list of predefined alternative addresses; and

attempting a connection to the determined alternative network address.

14. A method as defined in claim 1, further comprising, in response to encountering voice mail at the first network address:

announcing the call closure stimulus event to the first network address;

announcing a third network address and an access code to the first network address; and

in response to a call placed to the third network address and dialling of the access code, connecting the call to the second network address.

15. A method as defined in claim 1, comprising tailoring a format of an announcement to a terminal connected to one of the first and second network addresses.

16. A method as defined in claim 1, wherein the call closure stimulus event is a match between criteria defined in first and second records.

17. A method as defined in claim 1, wherein the call closure stimulus event is availability of requested information.

18. A method as defined in claim 1, wherein the call closure stimulus event is a detected need for service.

19. A method as defined in claim 1, wherein the call closure stimulus event is receipt of a message.

20. An automated contact closure system, comprising:

a detector for automatically detecting a predefined call closure stimulus event; and

call closure means operable to:

place a call to a first predefined network address in response to detection of a predefined call closure stimulation event;

announce the predefined call closure stimulus event and offer a connection to a second predefined network address in response to answering of the placed call; and

connect the first predefined network address to the second predefined network address in response to acceptance of the offer.

21. A system as defined in claim 20, wherein the call closure means comprises a processor and a memory storing instructions for execution by the processor, the instructions comprising a call closure application.

22. A system as defined in claim 21, wherein the call closure means comprises at least one telecommunications network interface for connecting the processor to a telecommunications network, the telecommunications network interface being operable to control at least one telecommunications switch of the telecommunications network to establish connections between predefined network addresses.

23. A system as defined in claim 21, wherein the detector comprises:

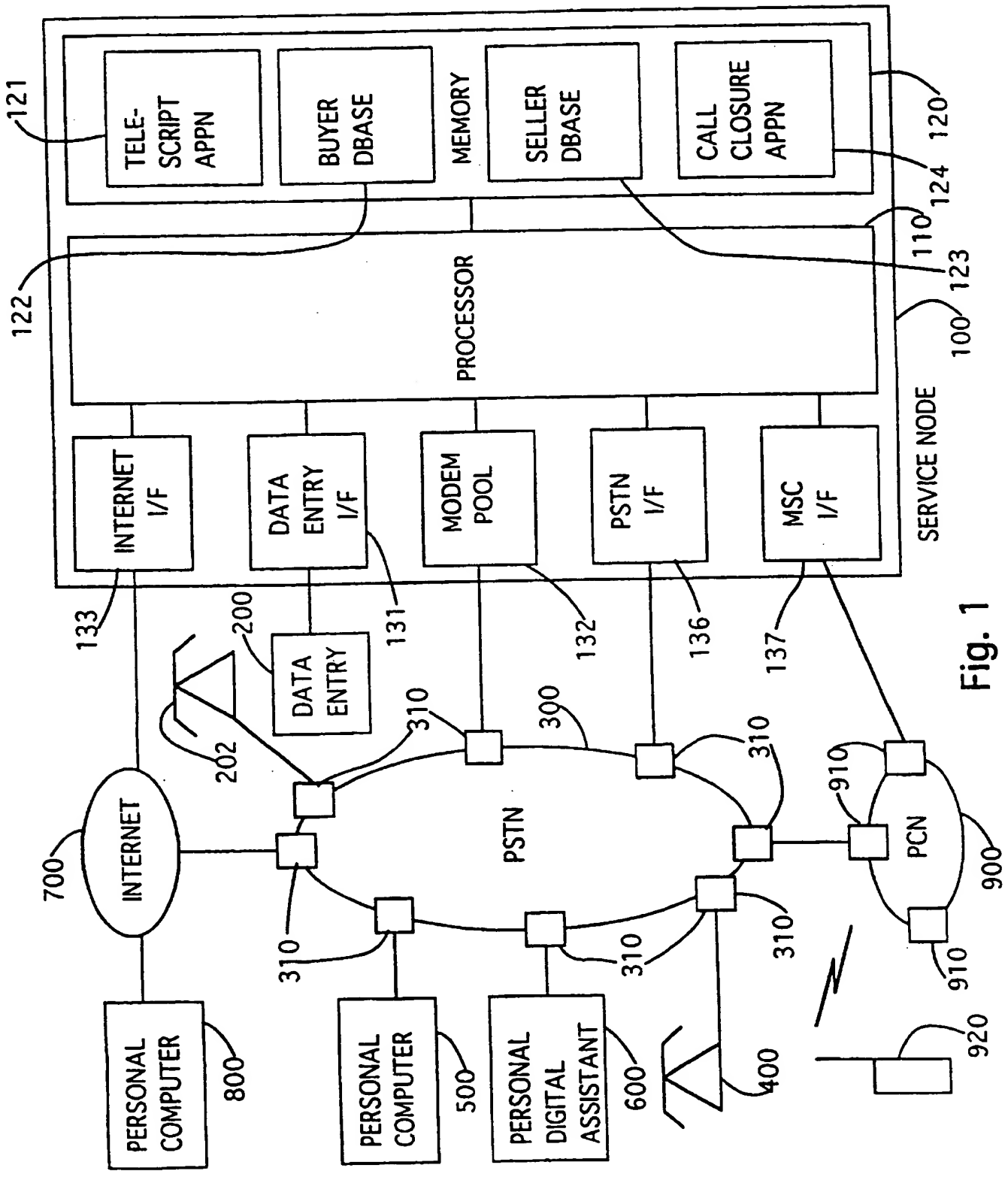
at least one database for storing data records; and

means for automatically detecting matches between predefined fields of the stored data records, said matches comprising call closure stimulus events.

24. A system as defined in claim 21, wherein the detector comprises:

at least one database for storing data records; and

means for automatically detecting changes to predefined fields of the stored data records, said changes comprising call closure stimulus events.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BUYER DBASE
MEMORY
SELLER DBASE
CALL CLOSURE APPN
PROCESSOR
SERVICE NODE
INTERNET I/F
DATA ENTRY I/F
MODEM POOL
PSTN I/F
MSC I/F
DATA ENTRY
INTERNET
PSTN
PCN
PERSONAL COMPUTER
PERSONAL COMPUTER
PERSONAL DIGITAL ASSISTANT
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Fig. 1

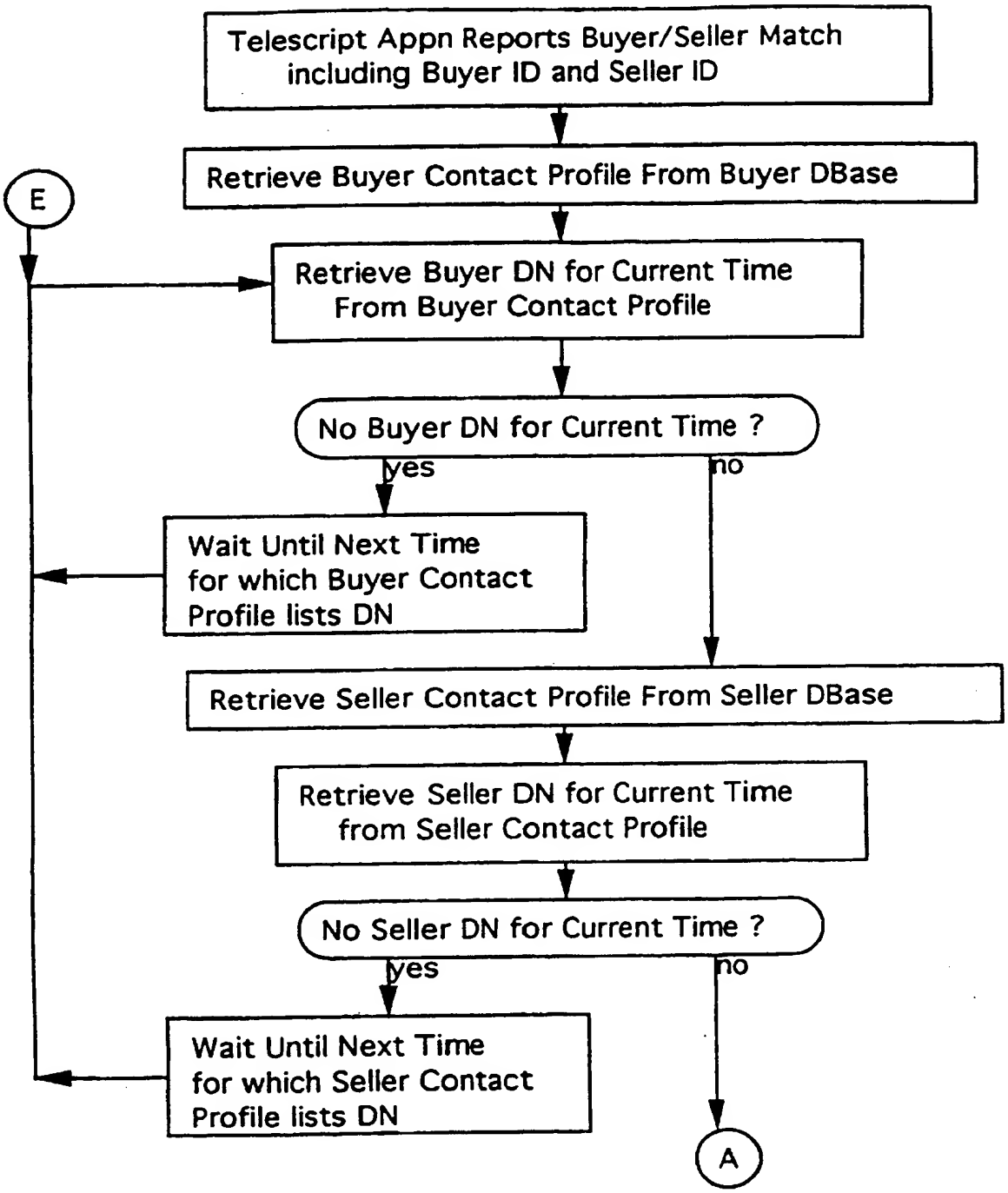
Telescript Appn Reports Buyer/Seller Match including Buyer ID and Seller ID
Retrieve Buyer Contact Profile From Buyer DBase
E
Retrieve Buyer DN for Current Time From Buyer Contact Profile
No Buyer DN for Current Time ?
yes
no
Wait Until Next Time for which Buyer Contact Profile lists DN
Retrieve Seller Contact Profile From Seller DBase
Retrieve Seller DN for Current Time from Seller Contact Profile
No Seller DN for Current Time ?
yes
no
Wait Until Next Time for which Seller Contact Profile lists DN
A

Fig. 2A

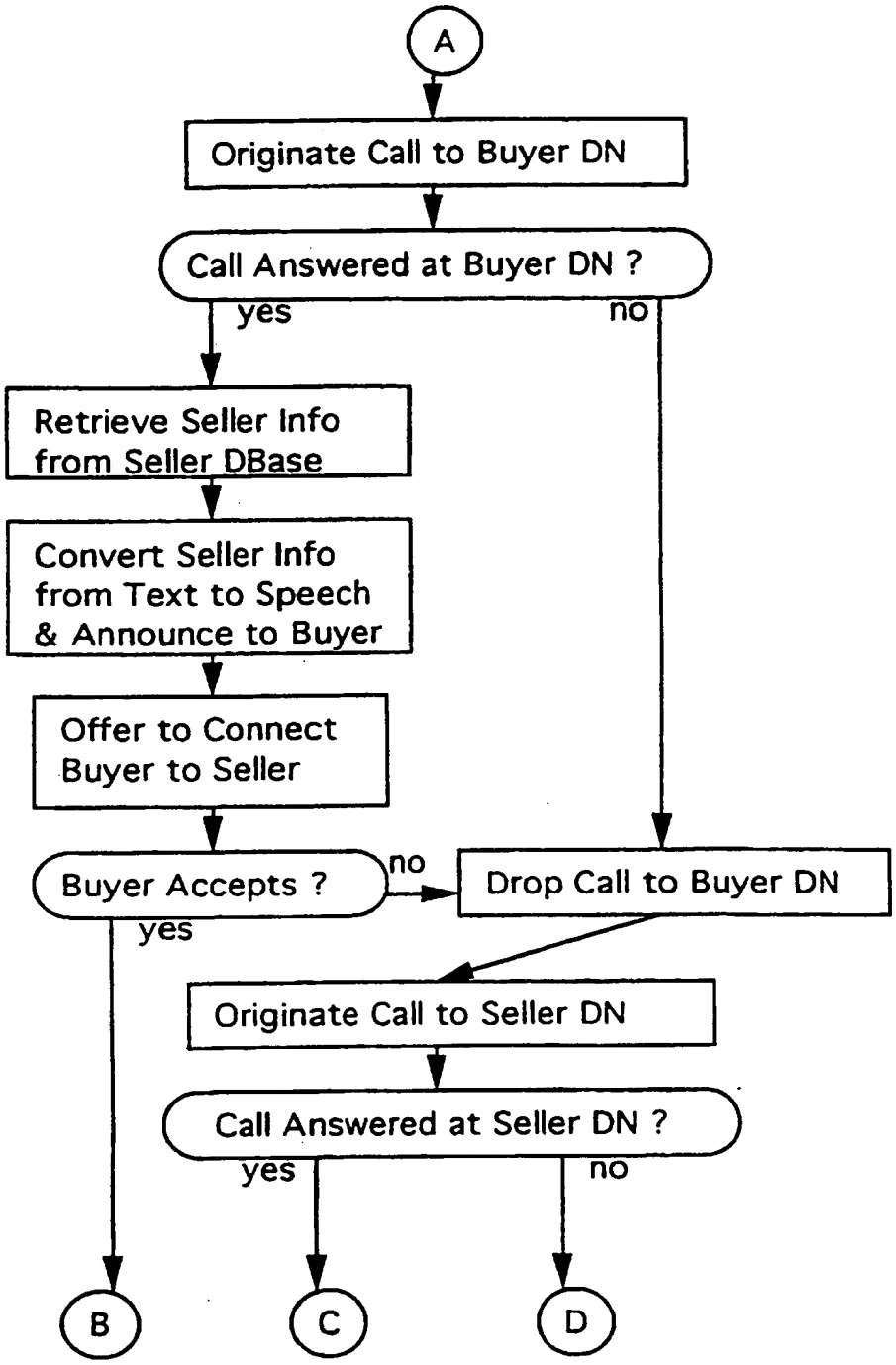
A
Originate Call to Buyer DN
Call Answered at Buyer DN ?
yes
no
Retrieve Seller Info from Seller DBase
Convert Seller Info from Text to Speech & Announce to Buyer
Offer to Connect Buyer to Seller
Buyer Accepts ?
no
yes
Drop Call to Buyer DN
Originate Call to Seller DN
Call Answered at Seller DN ?
yes
no
B
C
D

Fig. 2B

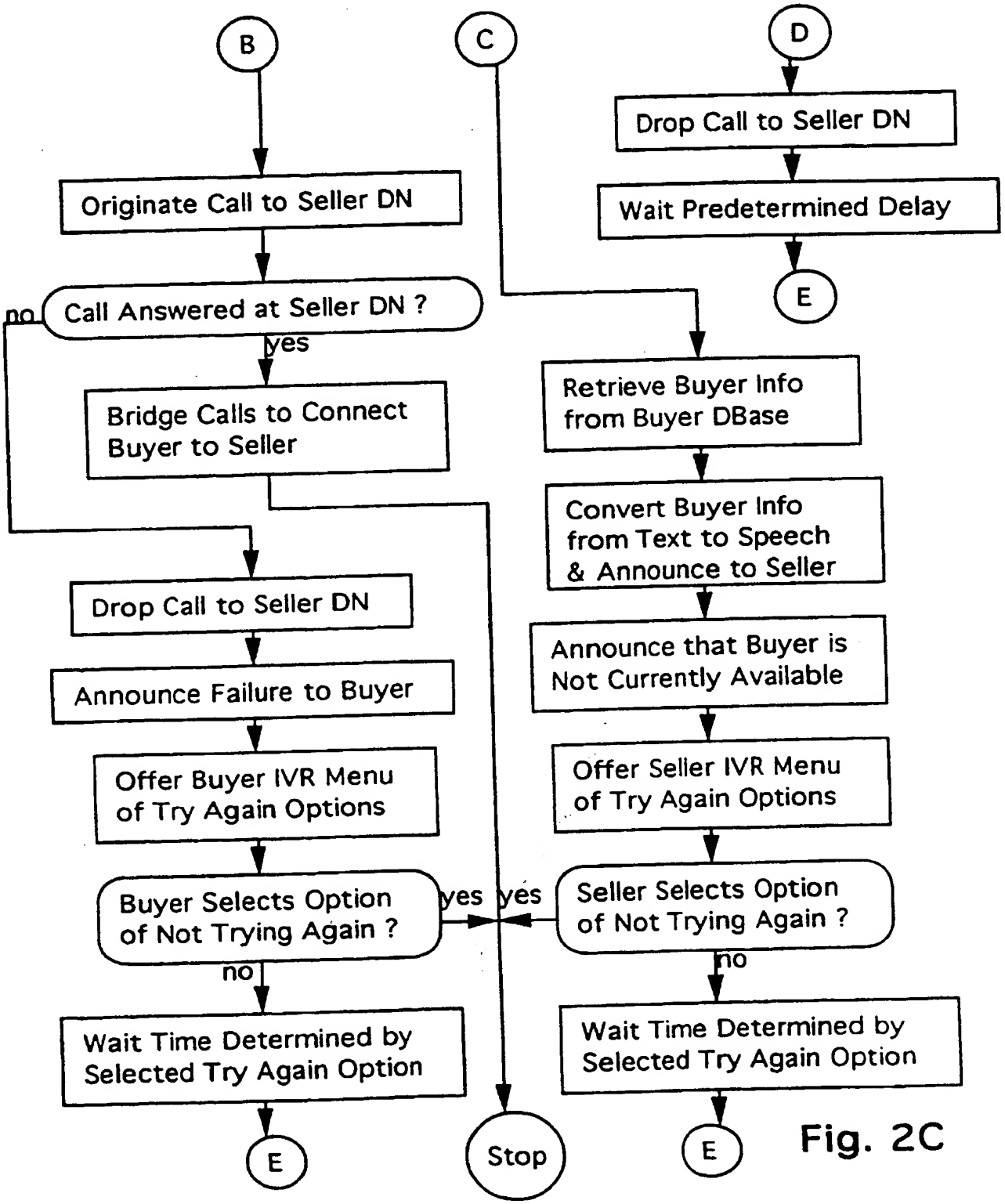
B
C
D
Originate Call to Seller DN
Drop Call to Seller DN
Wait Predetermined Delay
E
no
Call Answered at Seller DN ?
yes
Bridge Calls to Connect Buyer to Seller
Retrieve Buyer Info from Buyer DBase
Convert Buyer Info from Text to Speech & Announce to Seller
Drop Call to Seller DN
Announce Failure to Buyer
Announce that Buyer is Not Currently Available
Offer Buyer IVR Menu of Try Again Options
Offer Seller IVR Menu of Try Again Options
Buyer Selects Option of Not Trying Again ?
yes
yes
Seller Selects Option of Not Trying Again ?
no
no
Wait Time Determined by Selected Try Again Option
Wait Time Determined by Selected Try Again Option
E
Stop
E

Fig. 2C

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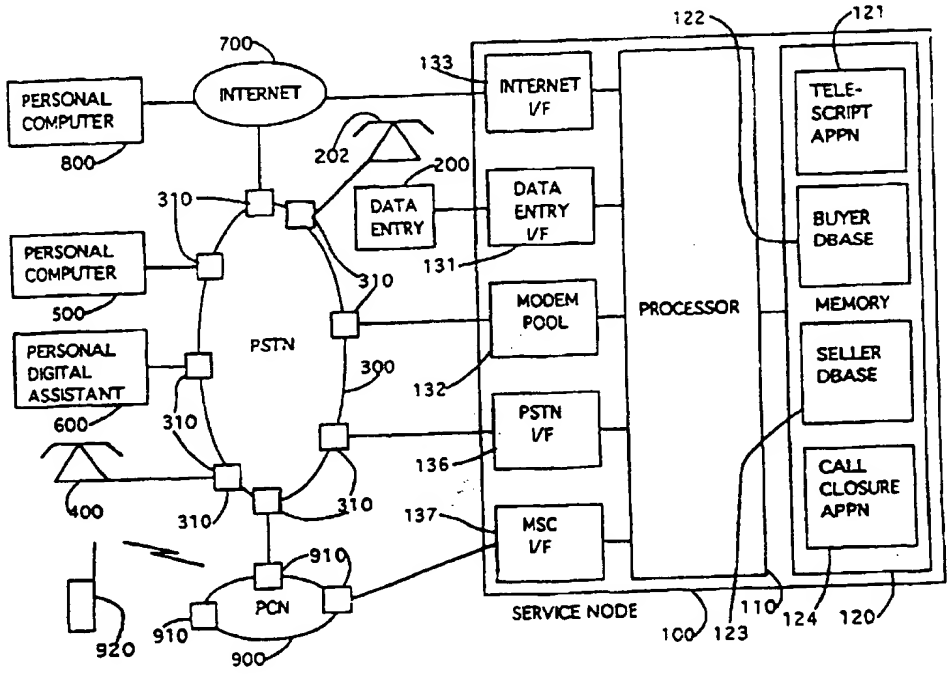

(57) Abstract

In methods and apparatus for contact closure, a predefined call closure stimulus event is detected and, in response to such detection a call is placed to a first predefined network. When the call is answered at the first network address, the call closure stimulus event i announced, and a connection to a second predefined network address is offered. In response to acceptance of the offer the first networ address is connected to the second network address.

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INTERNATIONAL SEARCH REPORT

national Application No
PCT/CA 96/00647

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IPC 6 H04M3/42

According to International Patent Classification (IPC) or to both national classification and IPC

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Minimum documentation searched (classification system followed by classification symbols)
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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	EP 0 435 449 A (AT&T) 3 July 1991 see column 3, line 48 - column 4, line 9 see column 5, line 22 - column 6, line 37 ---	1,5,9, 10,15, 18, 20-22,24
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Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA	Authorized officer
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INTERNATIONAL SEARCH REPORT

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Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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International Application No
PCT/CA 96/00647

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